e or E....
Future Workforce Education

People Supply the Vision
Science Supplies the Tools
Together We Build Tomorrow

Rick Stephens
rick.stephens @boeing.com
Elane V Scott
evscott7@aol.com

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Workforce's Challenge

- **We do not have a labor shortage in today's workforce**

- **We have a shortage of people with the skill sets to be creative, innovative, and adaptive in a technically driven workplace**

Citizens in the 21ˢᵗ Century
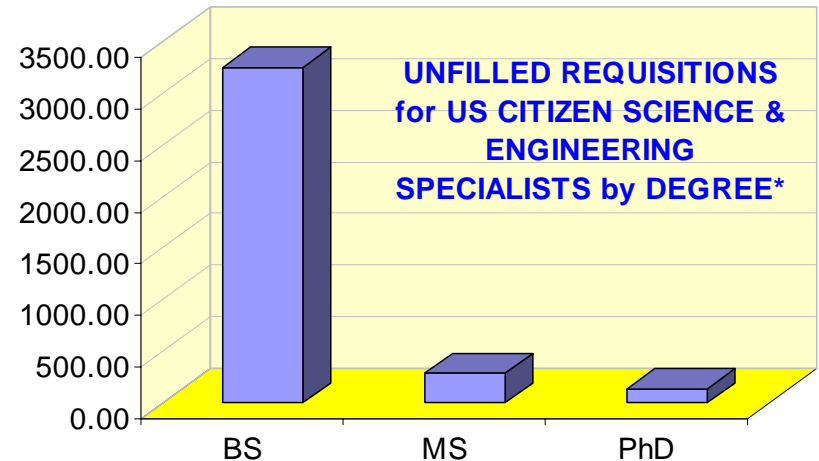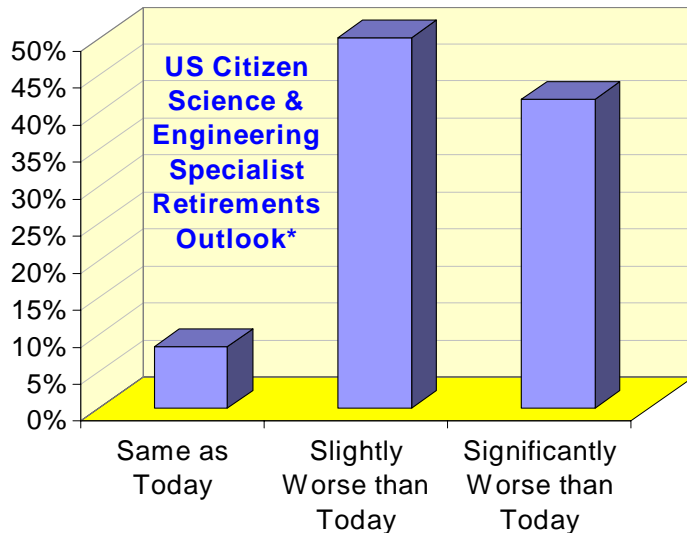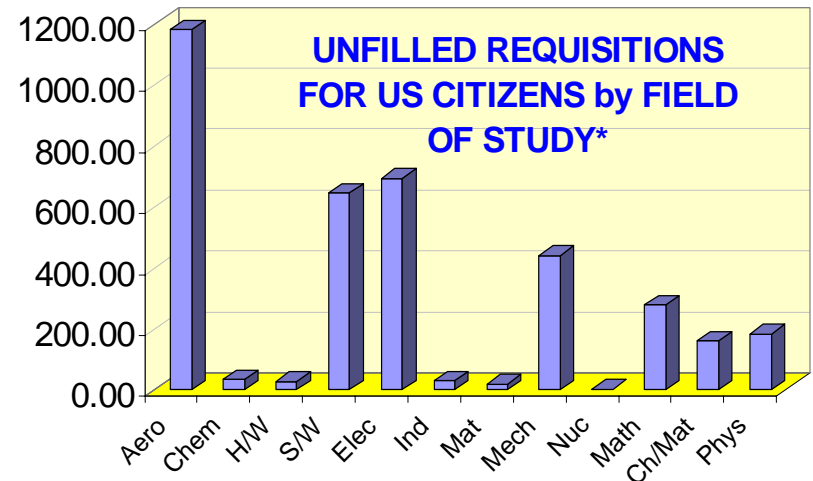## Education and business's shared vision for America's citizens

- **Capable of economic self sufficiency**

- **Active participants in the process of governance**

- **Ability to effectively communicate and interact with others**

- **Passion to learn, unlearn and relearn**

- **Focus on the future**

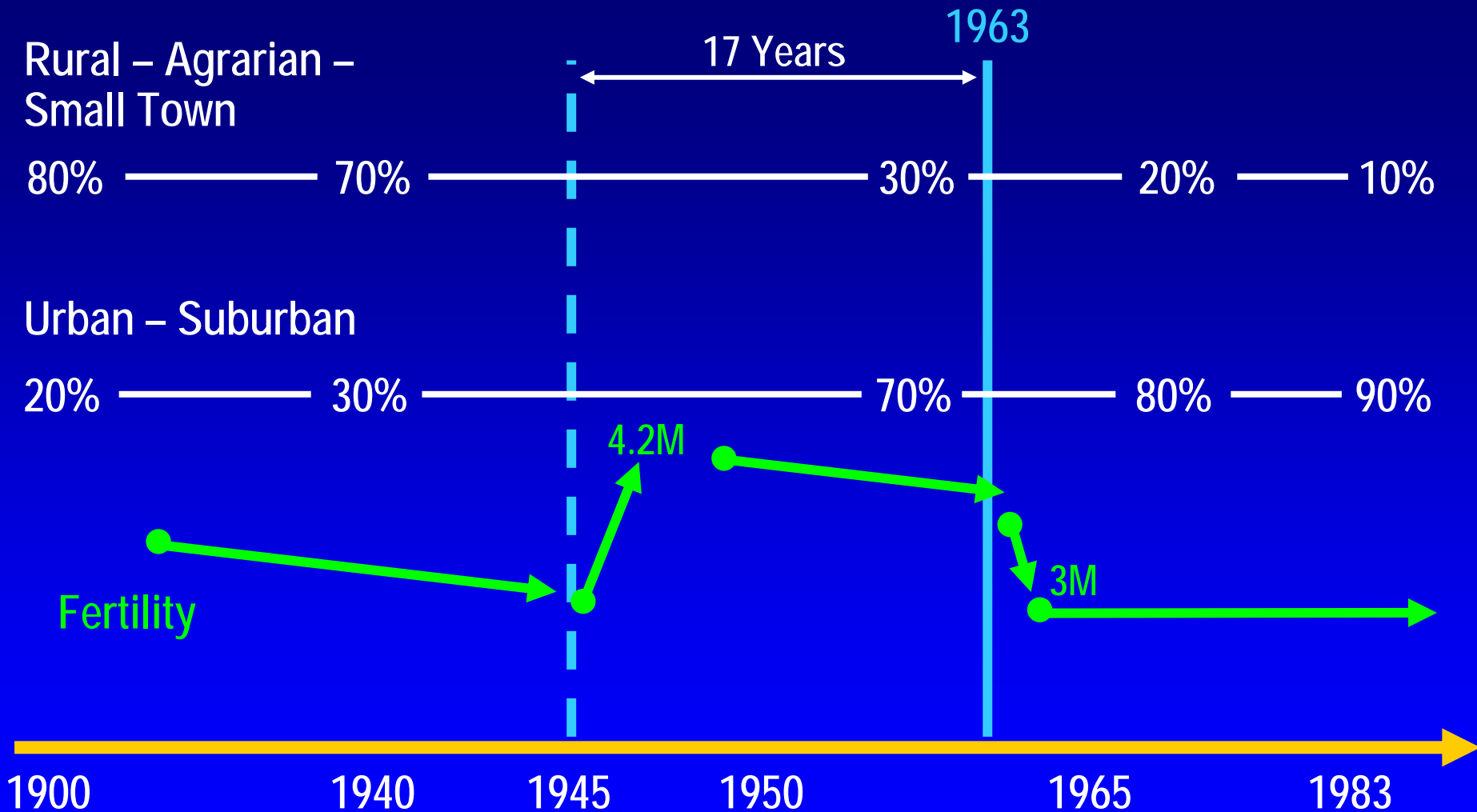# What Types of People Are Needed to Fulfill This Future Vision?

◆ **Greater numbers of qualified, technically able people who can adjust to a rapidly changing work environment, through life-long learning, are needed to enter the job market**

  – (30%) Professionals

  – (70%) Certificated

  – (All) Technically competent

Industry Demand Data

- Overwhelming consensus
- Thousands of unfilled science & engineering positions for US citizens
- Getting worse

UNFILLED REQUISITIONS FOR US CITIZENS by FIELD OF STUDY*

US Citizen Science & Engineering Specialist Retirements Outlook*

UNFILLED REQUISITIONS for US CITIZEN SCIENCE & ENGINEERING SPECIALISTS by DEGREE*

Timeline of Cultural Change

The Government Can't Shape and Change Cultural Issues by Itself

- **1969 – U.S. Office of Education – Help Communities Help Themselves**

- **1970 – U.S. Federal Drug Abuse Prevention Act Passed**

- **1975-77 – U.S. Congress adopted Manpower Development Strategy for Alcohol, Drug and Mental Health   Implemented by Dept of Health, Education and Welfare**

- **1979 – Published model for the Criminal Justice System**

- **1981 – Projects in mentoring programs, Head Start – attracted interest of someone in those programs**

Concepts From the Past 20 Years

- Adopted and Abandoned
    - 1983 – "A Nation at Risk" – Department of Education
    - 1987 – "A Generation at Risk" - PBS Special
    - 1992 – SCANS Competency Publication - Dept of Labor
    - 1994 – Second to none
    - 1997 – "It Takes a Village"
- Currently Active
    - 1997 – America's Promise Summit
    - 1999 – "Success by Six" Through United Way
    - 2001 – "No Child Left Behind"

Misalignment Between Schools and the Workplace

- **Education standards**
  - **What's important for students to know and be able to do?**
  - **Current measurement focuses on information recall**

- **Workplace requires more ... Capacity, Capability and Creativity**
  - **Traits that must be nurtured, developed and practiced**
  - **They can not be memorized**
  - **Difficult to assess through standardized tests**

- **Systems thinking is required to integrate education and workforce concepts**

The Measure of Success in Education Must Include a Measure of Workforce Readiness

Rapid Technology Changes and Future Jobs

♦ *The fastest growing occupations through 2008 will be in technology and information management.*

Bureau of Labor Statistics

♦ *"60 percent of all future jobs require training that only 20 percent of current workers possess."*

Richard Judy – Discovery Institute

Footnote: From Presentation By David Vance, Catepillar University

Uncertainty
Our Shared Challenge

"We are attempting to educate students today so that they will be ready to solve future problems that have not yet been identified using technologies not yet invented based on scientific knowledge not yet discovered."

Joseph Lagowski

University of Texas at Austin

Secretary's* Commission on Achieving Necessary Skills (SCANS)

◆ Three Part Foundation

– *Basic Skills*: Reads, writes, performs arithmetic and mathematical operations, listens and speaks

– *Thinking Skills*: Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons

– *Personal Qualities*: Displays responsibility, self-esteem, sociability, self-management, and integrity and honesty

*Secretary of Labor

◆ Five Workplace Competencies

– *Resources:* Identifies, organizes, plans, and allocates resources

– *Interpersonal*: Works with others

– *Information*: Acquires and uses information

– *Systems*: Understands complex inter-relationships

– *Technology*: Works with a variety of technologies

National Education Key Performance Indicators

◆ US high school drop out rates = 10.9% (This equates to **1,300** students per day dropping out of system)

◆ Education spending soars since 1984 but reading scores have stayed static, significantly **below** proficient

◆ US TIMSS math and science scores are 18th and 19th in the world

◆ Nearly half of all US college students take at least one remedial class; students pay $12 million a year for courses that don't apply towards graduation

Consider the Challenge

- **15,000 hours of curriculum for 12,000 hours of class time**

- **90% of critical brain development occurs ages birth to 6**

- **Children are involved in formal classroom education 12% of their life**

- **Most students don't see relationship between education and the "real world"**

- **Not every student will go to college . . . And that's OK!**

- **Only 40% have an ongoing relationship with a caring adult**

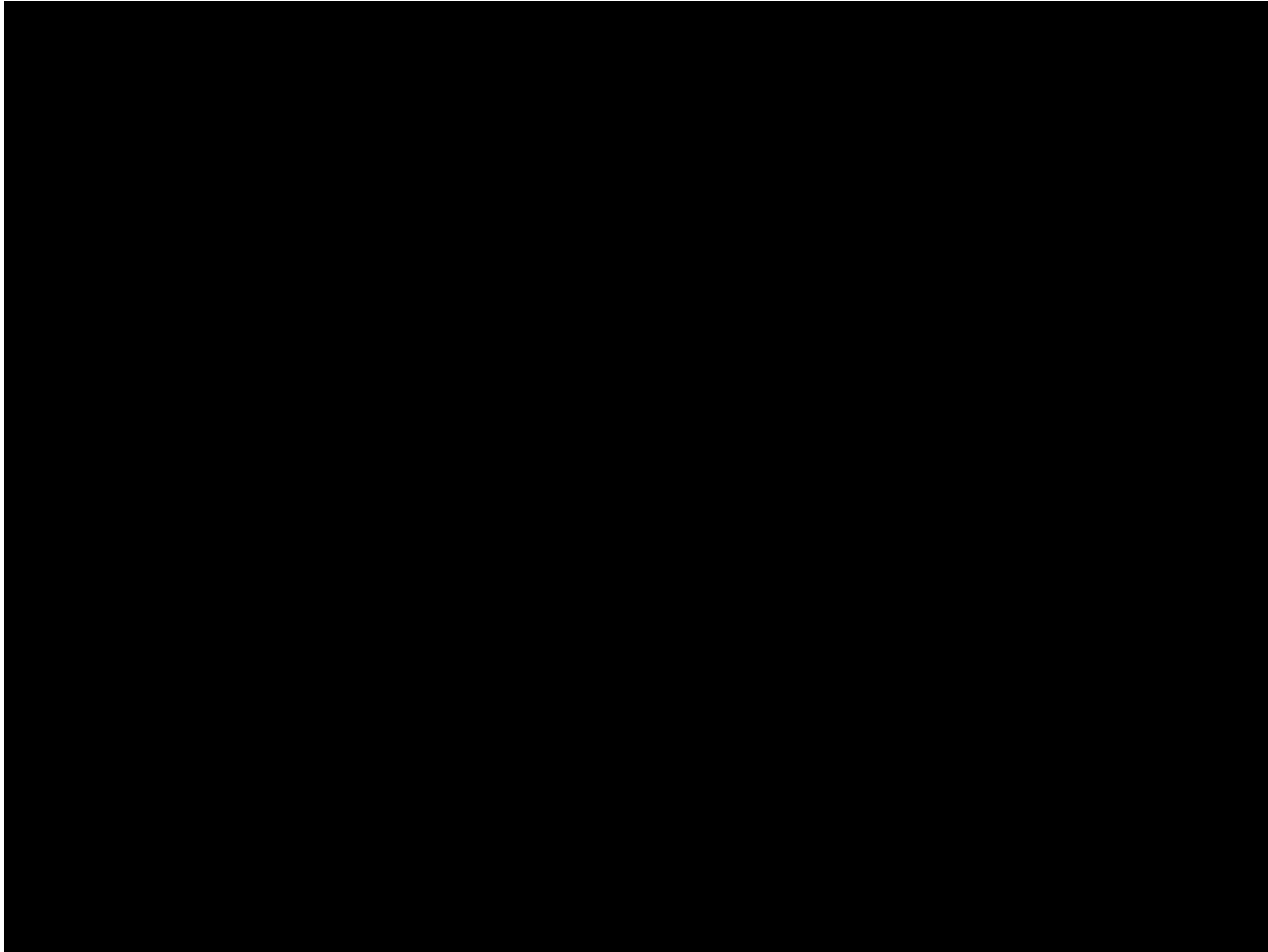- **Less than 50% have a place to go after school with something to do**

Perspectives, Attitudes and Behaviors

- "From the time a child is born to the time they graduate from high school, they spend 12% of their time in school."

"Merchants of Cool"

We Must Think Differently

◆ **Schools alone do not own the problem**

◆ **Education doesn't begin when kids go to school**

◆ **Misalignment between educational programs and workforce needs**

◆ **More programs is not the answer**

◆ **"Fixing" education does not solve workforce issues**

◆ **Media must be included in the solution**

◆ **Everyone wants (and needs) to help**

Many People Are Trying to Help

Future Workforce and Education Challenges

Challenges

♦ The problem does not belong to schools alone

♦ No one can own the problem by themselves

♦ Integrating multiple and diverse constituents with different
- Motivations
- Languages
- Expectations
- But all common need….. *Strong and vibrant global economy*

Opportunity - Application of the systems integration model
- Process perfected by the aerospace industry
- Drives integrated solutions for multiple and diverse stakeholders

A Coalition Must Take on the Problem

Key Elements Requiring Alignment
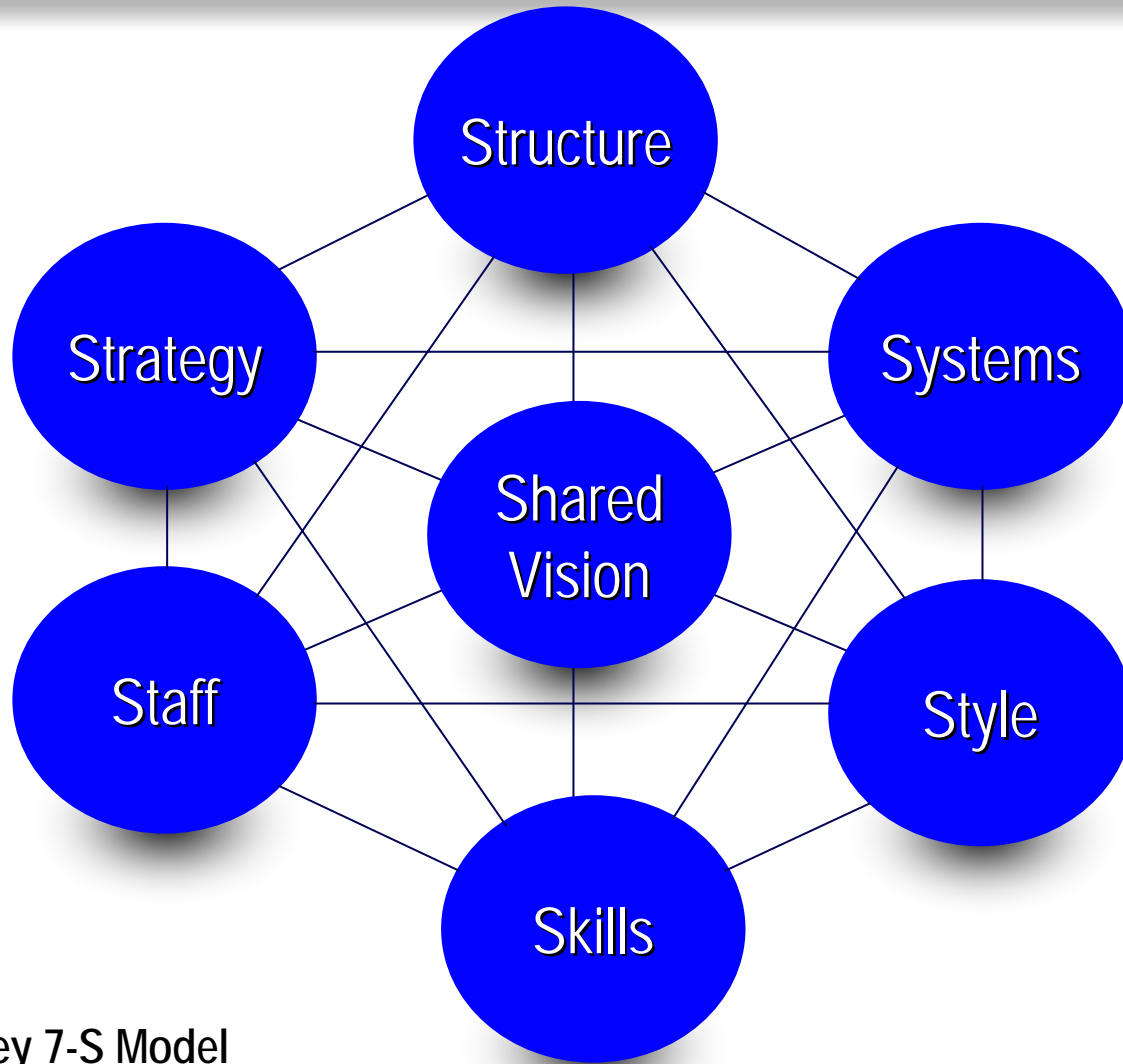
Based on McKinsey 7-S Model

Action Plan

1. Identify and attract stakeholder community leaders
2. Agree on common language and shared value (common ground)
3. Agree on shared vision, scope of work and measures of success
4. Agree on stakeholder roles and responsibilities
   - Including key stakeholder interfaces
5. Agree on resource requirements
6. Establish and implement management process
   - Cost, schedule, technical performance measurement
   - Issue identification and resolution process
   - Risk identification and mitigation plan

Future Workforce/Education

Where there is no vision the people perish.

Media

Government

Business

Health

Education

Community